1996 N.C. Stranding Event

Joanne Braun and I met with a number of faculty and students at NCSU College of Veterinary Medicine on July 17, 1996 to discuss the results to date on the pathology of recently stranded sea turtles in North Carolina. North Carolina has experienced two stranding events of live or fresh dead sea turtles since May. The first occurred on the northern beaches in early May and the second was centered in Onslow Bay (Cape Fear to Cape Lookout) during June. Most of the turtles of the first event (about 30) appeared healthy and had been feeding in estuarine or nearshore ocean waters. Nearly all of the turtles of the second event had empty stomachs and poor to moderate fat stores, and apparently had begun "wasting away". In addition, the turtles of the second event generally exhibited necrosis of the limbs, and sometimes this was in the carapace, also. The total number of necrotic turtles stranding has not been determined yet, but the number probably is about 25, including 6 that stranded south of Cape Fear (2 in N.C. and 4 in S.C.). Two green turtles have been involved in the second event and the remainder were loggerheads.

The Vet School staff is very interested in this problem and plans to continue to pursue the case(s). Maria Correa's epidemiology class prepared a preliminary report on the first event, but at the time the report was prepared, much of the histopathology results were not yet available. Recently, Jay Levine, an epidemiologist, became involved, and his current class is working on the second event as a class project. I anticipate some type of report from the students. Andy Stamper is back on campus and will be our contact to the University. He has been assigned this project for his epidemiology rotational block. Todd Cornish has completed his residency and has relocated to Athens, Georgia, but will continue to be involved and process tissues from necrotic turtles stranding in the future. Greg Lewbart will continue to be involved, also.

There was much discussion about the two events. Given the narrow geographic area where the animals of the second event were stranding (Onslow Bay and northern Long Bay), it is most likely that the cause of the second event is an acute, rather than a chronic exposure. It has yet to be determined if the two events are related. The second event has raised the most interest at the University.

The primary question is "What is causing the skin lesions and is that causing the turtles' deaths?" The second question is "what is killing the turtles without the lesions?" Probably more than one thing is involved in the animals without the lesions. Most that didn't have skin lesions had internal microscopic lesions indicative of bacterial, fungal, or nutritional causes of death. It was noted that, likely, we will not find the answers to these questions.

Most with skin lesions also had internal lesions suggesting endoparasitism in the cause of stranding and/or death.

The pathologist, Todd Cornish, observed lesions from spirorchid flukes in both sets of strandings, with varying degrees of infestation. All but one animal examined with necrotic tissues or ulcerations had these spirorchid trematodes, sometimes including nearly every organ examined (including the brains, even in turtles of the first event). He generally observed a granulomous vasculitis around the necrosis. However, he never saw a vessel near a lesion that had even a single fluke egg in any skin section examined (about 40). These trematodes have been reported previously in both green and loggerhead turtles. They are cardiovascular flukes and can cause infarction of organs. They have been described to cause anemia, septicemia, etc. and many of the animals exhibited these symptoms.

Based on morphology, Todd doesn't thing the animals were immunocompromised. He has

doubts that the primary cause of the necrosis was viral. Viruses and toxins should affect the liver and most livers looked normal. Nevertheless, various organisms (e.g. Vibrio, fungal hypae) have been found in the tissues (e.g. brain, liver, blood, etc.) but no pattern emerges here. Virology results from NCSU are outstanding.

The samples for toxicology have been sent to the NMFS Charleston Lab for processing. We expect the results by the end of August.
Tissues of 7 animals have been sent to AFIP and we are awaiting those results. Some results from NCSU are outstanding, also. We've received the histopathology reports on 5 sets of tissues sent to U. Penn. (Donna Damback). Results of identification of parasites sent to Ellis Greiner are outstanding.

It was highlighted that it is very important to necropsy every fresh dead turtle with strict necropsy procedures so that data exists on baseline, healthy turtles (presumed drowning victims) as well as on pathological animals. Andy is developing a standardized gross necropsy reporting form for our/universal use. We'll work with Ruth Boettcher towards this goal.

Sheryan Epperly
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